

New species of *Hormopeza* Zetterstedt from South Africa and Tasmania (Diptera: Empididae)

by

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ABSTRACT

The first southern hemisphere species of *Hormopeza* Zetterstedt, previously known only from the Holarctic Region, are described. *Hormopeza natalensis* sp. n. is described from Natal, South Africa, and *H. hadrocera* sp. n. is described from Tasmania, Australia.

INTRODUCTION

Species of *Hormopeza* Zetterstedt (Diptera: Empididae) are commonly known as empidid smoke flies, in reference to their attraction to smoke (Collin 1918, Kessel 1952 1958). Large swarms consisting of both sexes have been observed in smoke from woodfires (Kessel 1958, Chandler 1978). This is in contrast to the platypezid smoke fly *Microsania* Zetterstedt, whose swarms attracted to smoke normally consist almost entirely of males (Chandler 1978).

In a series of studies, Kessel (1952 1958 1965) attempted to determine whether *Hormopeza* preyed upon the swarms of *Microsania* as first reported by Collart (1953). Eventually, Kessel (1965) confirmed that *Hormopeza* may occasionally take *Microsania* as prey. In addition, males of *Hormopeza* were observed to form small mating swarms around the margin of the smoke. Additional life history information is unavailable and the immature stages remain unknown.

The genus is recognised readily by the shape of the antenna and the wing venation. The first flagellomere is very broad with a short, thick two-articled style bearing an apical bristle. The wings of *Hormopeza* possess a widely divergent R_4 and R_5 , a slightly angulated, obtuse junction of CuA_2 with A_1 , and all veins on the posterior half of the wing are lightly pigmented (Collin 1961, fig. 105).

There are eight named species of *Hormopeza* currently recognised from the Nearctic and Palearctic Regions (Chvála & Wagner 1989, Steyskal 1969), and a single species from northeastern Burma (Frey 1953). The genus is primarily considered a temperate element and probably includes a number of Holarctic species. In this paper, two new species of *Hormopeza* are described and represent the first records of the genus from the southern hemisphere.

MATERIALS AND METHODS

This study was based on pinned adult material of *Hormopeza* found while identifying unsorted collections from the following two institutions: Natal Museum,

Pietermaritzburg, South Africa (NMSA); Museum of Victoria, Melbourne, Australia (MVM).

Terms used for adult structures follow those of McAlpine (1981), except male terminalia where terms of Cumming *et al.* (1995) are followed. For examination of male terminalia, the apical portion of the abdomen was removed and macerated in hot 85 % lactic acid.

Label data of holotypes are cited in full, with original spelling, punctuation and date; lines are delimited by a slash mark (/), and a semicolon separates data quoted from different labels.

TAXONOMY

***Hormopeza natalensis* sp. n.**

Figs 1 & 2

Etymology: Refers to the type locality of this species.

Holotype ♂: 'SOUTH AFRICA, NATAL / Pietermaritzburg / Belfort, Oct., 1, 1972 / M.E. Irwin, in / back yard [hand written] [genitalia dissected and stored in microvial pinned beneath specimen]'; 'HOLOTYPE / *Hormopeza* / *natalensis* / Sinclair [red label]'. In NMSA.

Recognition: *Hormopeza natalensis* may be distinguished from other species of the genus by the elongate, apical phallic filament. The affinities of the species within *Hormopeza* remain uncertain.

Description (male):

Head: Dusted greyish. Eyes widely separated on both frons and face; facets of equal size. Margins of frons with pale setulae; ocellar setae long. Antennae dusted greyish. Proboscis short, projecting obliquely.

Thorax: Dusted light greyish. All setae dark yellow; acrostichals biserial, short; 8–10 slightly longer dorsocentrals; 2 rows intra-alar setae similar to dorsocentrals; 1 row supra-alar setae; 1 long and 2 short postpronotals; 1 posthumeral; 2 long and 1 short notopleurals; 1 long postalar; 4 pairs scutellar setae, with scutellar fringe of short setae. Halter dusted greyish.

Legs: Brown, slightly shining; coxae dull, yellowish brown. Coxae with long, yellowish setae on outer margin. Legs densely clothed with short setae; femora with dorsal row of stout setae; hind femora with row of long, anteroventral apical setae. Mid and hind tibiae with 3–4 outstanding anteroventral and posteroventral setae. Pulvilli well-developed, whitish; tarsal claw of foreleg absent.

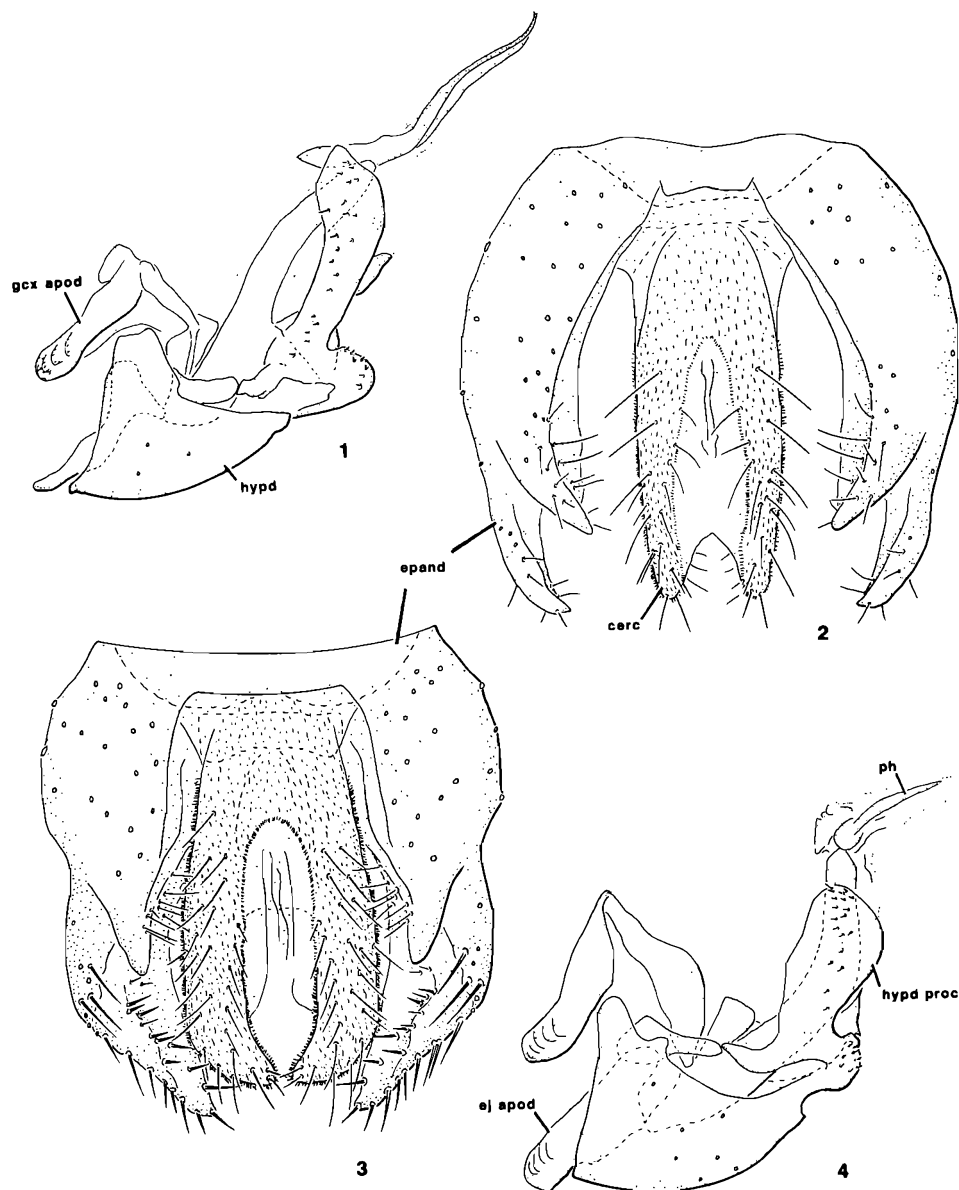
Wings: Hyaline; veins yellowish, very faint on posterior half of wing; anal vein not reaching margin.

Abdomen: Shiny dark brown; clothed in yellowish setae, longer on lateral and hind margins of segments. Tergite 8 rectangular, subdivided medially by transverse desclerotisation; posterior margin with fringe of long setae.

Terminalia (Figs 1 & 2): Cerci long, slender and lightly sclerotised; apex straight. Epandrium deeply cleft, gradually tapering; apex in profile pointed; apex of upper epandrial process slender. Lateral hypandrial process finger-shaped, angulate dorsally; bearing minute setae medially. Phallus biarticulated; apical filament long,

undulated, with broad pigmented wing-like lateral basal flanges; pair of darkly pigmented processes arising from between lateral hypandrial processes.

Female: Unknown.



Figs 1–4. Male terminalia of *Hormopeza*. 1–2. *H. natalensis* sp. n. 1. Hypandrium and phallus, lateral view. 2. Epandrium and cerci, dorsal view. 3–4. *H. hadrocercus* sp. n. 3. Epandrium and cerci, dorsal view. 4. Hypandrium and phallus, lateral view. [Abbreviations: cerc = cercus; ej apod = ejaculatory apodeme; epand = epandrium; gcx apod = gonocoxal apodeme; hypd proc = hypandrial process; hypd = hypandrium; ph = phallus.]

Hormopeza hadrocerca sp. n.

Figs 3 & 4

Etymology: *Hadros* (Gr.) = stout. Refers to the stout male cercus.

Holotype ♂: AUSTRALIA: Tasmania: 'C E.Cole / Tyenna Tas / 2-1.17/5 [2.i.1917]'; 'HOLOTYPE / Hormopeza / hadrocerca / Sinclair [red label]'. In MVM.

Recognition: Based on male terminalia (apex of epandrium, and lateral hypandrial process), this species appears to be most similar to *H. senator* Melander.

Description (male):

Head: Dusted greyish. Eyes widely separated on both frons and face; facets of equal size. Margins of frons with pale setulae; ocellar setae long. Antennae dusted yellowish-grey. Proboscis short, projecting obliquely.

Thorax: Dusted light greyish. All setae dark yellow; acrostichals biserial, short; 8-10 slightly longer dorsocentrals; 2 rows intra-alar setae similar to dorsocentrals; 1 row supra-alar setae; 1 long and 2 short postpronotals; 1 posthumeral; 2 long and 1 short notopleurals; 1 long postalar; 3 pairs scutellar setae, with scutellar fringe of short setae. Halter dusted yellowish-grey.

Legs: Brown to yellowish brown, slightly shining; coxae concolorous with remaining segments. Coxae with long, yellowish setae on outer margin. Legs densely clothed with short setae; femora with dorsal row of stout setae; hind femora with row of short, anteroventral apical setae. Hind tibiae with 2-3 outstanding anteroventral and posteroventral setae. Pulvilli well-developed, whitish; tarsal claw of foreleg absent.

Wings: Hyaline; veins yellowish, very faint on posterior half of wing; anal vein not reaching margin.

Abdomen: Shiny dark brown; clothed in yellowish setae, these longer on lateral and hind margins of segments. Tergite 8 rectangular, anterior margin slightly tapered to median point; partially subdivided medially by transverse desclerotization; posterior margin with fringe of long setae.

Terminalia (Figs 3 & 4): Cerci very long, slender and heavily sclerotized; apex slightly arched medially in transverse plane. Epandrium deeply cleft, laterally expanded subapically; apex in profile truncate, angulate dorsally; apex of upper epandrial process broad. Lateral hypandrial process thumb-shaped, with broad apex; bearing minute setae medially. Phallus biarticulated; apical filament short, with short membranous wing-like lateral basal flanges; single lightly pigmented process arising from between lateral hypandrial processes.

Female: Unknown.

Additional material: AUSTRALIA: *Tasmania*: Paratype: 1 ♂, Tyenna, 1-1.17/2, C. E. Cole (MVM).

DISCUSSION

It is interesting to note that males of northern hemisphere species possess eyes that are nearly holoptic, or what Collin (1961) described as closely approximated, but not actually touching. Male eyes are widely separated in both southern hemisphere species. It is hypothesised that holoptic male eyes represent the ground plan

condition in the Empidoidea (Wiegmann *et al.* 1993). Given this polarity, it could be assumed that the southern hemisphere species are derived from the relatively plesiomorphic northern hemisphere group. Variation in the size of male eyes (i.e. holoptic vs. dichoptic) within genera is known, however, to also occur in *Apalocnemis* Philippi, *Heterophlebus* Philippi, *Rhamphomyia* Meigen, and *Empis* L. Given this variation and the tendency for homoplasy, an analysis using all possible characters should be attempted prior to inferring affinities between the southern and northern hemisphere species.

The foreleg tarsal claws of male *Hormopeza* are absent in both species described above. This modification was first observed in this genus by Collin (1961), and likely represents a male secondary sexual character. All species of *Hormopeza* should be examined for this probable generic character. The male claws in Dolichopodidae are frequently modified in various ways.

Hormopeza is currently included in the plesiomorphic subfamily Oreogetoninae (Chvála 1983), and is considered to be closely related to the Palearctic and western Nearctic genus *Ragus* Walker and the western Nearctic genus *Zanclotus* Wilder (Collin 1961, Sinclair 1995). Features such as a flexible, apical phallic filament and lateral hypandrial processes suggest close affinities. In addition, the female labrum of *Hormopeza* is stout and slightly arched posteriorly (Tuomikoski 1960, fig. 1f), a condition found in both sexes of *Zanclotus* and *Ragus* (Sinclair 1995).

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